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## (54) Title: FLUIDIC DEVICES AND METHODS FOR MULTIPLEX CHEMICAL AND BIOCHEMICAL REACTIONS

(57) Abstract: The present invention describes microfluidic devices that provide novel fluidic structures to facilitate the separation of fluids into isolated, pico-liter sized compartments for performing multiplexing chemical and biological reactions. Applications of the novel devices including biomolecule synthesis, polynucleotide amplification, and binding assays are also disclosed.